



Certificate HK07/01191.00

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Design and Manufacturing of Mainboards and Peripheral Cards;**  
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This certificate is valid from 16 March 2007 until 15 March 2010  
Issue 1. Certified with SGS since March 2007

Multiple certificates have been issued for this scope  
The main certificate is numbered HK07/01191.00

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Certificate No.  
**PRC-HSPM-1172**

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**IECQ Certificate of Hazardous Substance Process Management (HSPM)  
applicable to the European Directive 2002/95/EC ("RoHS") requirements.**

The Supervising Inspectorate (SGS-CSTC Standards Technical Services Co., Ltd.), sponsored by the United States National Authorized Institution, ECCB certify that

**ECS Manufacturing (Shenzhen) Co., Ltd.**

No. 20 & 26 (except 1F, 2F & 3F),  
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Has developed and implemented Hazardous Substances Process Management, procedures, and related processes in compliance with the applicable requirements for HSPM organization approval which is in accordance with the Basic Rules IECQ-01 and Rules of Procedure QC 001002-3 "IECQ Hazardous Substance Process Management" of the IEC Quality Assessment System for Electronic Components (IECQ), and with respect to the Specification QC 080000 IECQ HSPM.

**This certification is applicable to all electronic components and related materials and processes for the**

Design and manufacture of Mainboards and Peripheral Cards.

Issued by Certification Authorities:



Electronic Component Certification Board

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# Preface

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Version 1.0

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This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment onto an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded interconnect cables and a shielded AC power cable must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system's manufacturer could void the user's authority to operate the equipment.

## Declaration of Conformity

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.






## Canadian Department of Communications

This class B digital apparatus meets all requirements of the Canadian Interference-causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

## About the Manual

The manual consists of the following:

<b>Chapter 1</b>	Describes features of the motherboard.
<b>Introducing the Motherboard</b>	Go to  page 1
<b>Chapter 2</b>	Describes installation of motherboard components.
<b>Installing the Motherboard</b>	Go to  page 7
<b>Chapter 3</b>	Provides information on using the BIOS Setup Utility.
<b>Using BIOS</b>	Go to  page 27
<b>Chapter 4</b>	Describes the motherboard software
<b>Using the Motherboard Software</b>	Go to  page 45
<b>Chapter 5</b>	Describes the Hybrid Graphics® Technology
<b>Hybrid Graphics® Technology Support</b>	Go to  page 51

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## Chapter 1

### *Introducing the Motherboard*

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#### **Introduction**

Thank you for choosing the A780GM-M3 motherboard. This motherboard is a high performance, enhanced function motherboard that supports socket for AMD Phenom™ processor (socket AM2+)/Athlon™ 64 X2 Dual-Core/Athlon™ 64/Sempron™ processors for high-end business or personal desktop markets.

The motherboard incorporates the AMD RS780 Northbridge (NB) and AMD SB700 Southbridge (SB) chipsets. The Northbridge supports the HyperTransport™ 3.0 interface. The memory controller supports DDR2 memory DIMM frequencies of 1066 (AM2+)/800/667/533/400. It supports two DDR2 slots with maximum memory size of 16 GB\*. One PCI Express x16 slot, intended for Graphics Interface, is fully compliant to the PCI Express® Generation 2.0. In addition, one PCI Express x1 slot is supported.

The SB700 Southbridge supports two PCI slots which are PCI v2.3 compliant. It integrates USB 2.0 interface. It implements an EHCI compliant interface that provides 480 Mb/s bandwidth for 8 USB 2.0 ports (4 USB ports and 2 USB 2.0 headers support additional 4 USB ports). The Southbridge integrates a Serial ATA host controller, supporting six SATA ports with maximum transfer rate up to 3.0 Gb/s each.

There is an advanced full set of I/O ports in the rear panel, including PS/2 mouse and keyboard connectors, COM, one VGA port, one DVI port, four USB ports, one LAN port and audio jacks for microphone, line-in and 6/8-ch (optional) line-out.



*\*Due to the DRAM maximum size (2 GB per dimm) at present, the memory maximum size we have tested is 4 GB.*

## Feature

### Processor

This motherboard uses a socket AM2+/AM2 that carries the following features:

- Accommodates AMD Phenom™ processor (socket AM2+) AMD Athlon™ 64X2 Dual-Core/Athlon™ 64/Sempron™ processors
  - Supports HyperTransport™ (HT) 3.0 interface speeds
- HyperTransport™ Technology is a point-to-point link between two devices, it enables integrated circuits to exchange information at much higher speeds than currently available interconnect technologies.

### Chipset

The AMD RS780 Northbridge (NB) and SB700 Southbridge (SB) chipsets are based on an innovative and scalable architecture with proven reliability and performance.

- RS780 (NB)**
- One x4 A-Link Express II interface (PCI Express 1.1 compliant) for connection to an AMD Southbridge
  - Supports one PCI Express x16 for Graphics Interface, fully compliant to the PCI Express Generation 2.0 (version 2.0)
  - Proven Radeon™ graphics powering DirectX®10
  - Enhanced Digital Display integration
  - Fully ACPI 2.0, OnNow, and IAPC (Instantly Available PC) power management
  - Single chip solution in 55nm, 1.1 V CMOS technology
  - Integrated ATI Hybrid Graphics® (support Hybrid CrossFire™), ATI Avivo™ HD¹, ATI PowerPlay™, Low Power Design, AMD Cool'n'Quiet™ 2.0, ATI SurroundView™, AMD OverDrive and AMD RAIDXpert™
- SB700 (SB)**
- Compliant with PCI v2.3 specification at 33 MHz
  - Supports six Serial ATA devices which speeds up to 3.0 Gb/s
  - Integrated USB 2.0 Host Controller supporting up to twelve USB 2.0 ports
  - Integrated IDE controller supports Ultra ATA 133/100/66/33 modes

### Memory

- Supports DDR2 1066 (AM2+)/800/667/533/400 DDR2 SDRAM with Dual-channel architecture
- Accommodates two unbuffered DIMMs
- Up to 8 GB per DIMM with maximum memory size up to 16 GB\*

### Onboard LAN (optional)

The onboard LAN controller provides either of the following features:

- |   |
|---|
| <ul style="list-style-type: none"> <li>• Integrated 10/100/1000 Base-T Transceiver</li> <li>• Integrated 10/100/1000 Mbps IEEE 802.3 compliant</li> <li>• IEEE 802.3u Auto-Negotiation</li> </ul> |
| <ul style="list-style-type: none"> <li>• Integrated 10BASE-T/100BASE-TX Transceiver</li> <li>• Integrated IEEE802.3z compliant</li> <li>• IEEE 802.3u Auto-Negotiation</li> </ul>                 |

Introducing the Motherboard



## Audio (optional)

The onboard Audio provides either of the following features:

<ul style="list-style-type: none"> <li>• 5.1 Channel High Definition Audio Codec</li> <li>• DACs support 96K/48K/44.1KHz sample rate</li> <li>• Power support: Digital:3.3V; Analog:5.0V</li> <li>• WOW™ and Tru Surround™ from SRS</li> <li>• Provides single ended CD input with DRM solutions and legacy OS issues</li> </ul>
<ul style="list-style-type: none"> <li>• 7.1+2 Channel High Definition Audio Codec</li> <li>• SPDIF In/Out supports 96K/48K/44.1KHz plus SPDIF OUT supports 88.2KHz</li> <li>• Power supports: Digital:3.3V; Analog:5.0V</li> <li>• MAxx Player™ from waves</li> <li>• Provides single ended CD input with DRM solutions and legacy OS issues</li> </ul>

## Expansion Options

The motherboard comes with the following expansion options:

- One PCI Express x16 for Graphics Interface
- One PCI Express x1 slot
- Two 32-bit PCI v2.3 compliant slots
- One IDE connector supporting up to two IDE devices
- Six 7-pin SATA connectors

This motherboard supports Ultra DMA bus mastering with transfer rates of 133/100/66/33 MB/s.

## Integrated I/O

The motherboard has a full set of I/O ports and connectors:

- Two PS/2 ports for mouse and keyboard
- One serial port
- One VGA port
- One DVI port
- Four USB ports
- One LAN port
- Audio jacks for microphone, line-in and 6/8-ch (optional) line-out

## BIOS Firmware

The motherboard uses AMI BIOS that enables users to configure many system features including the following:

- Power management
- Wake-up alarms
- CPU parameters
- CPU and memory timing

The firmware can also be used to set parameters for different processor clock speeds.

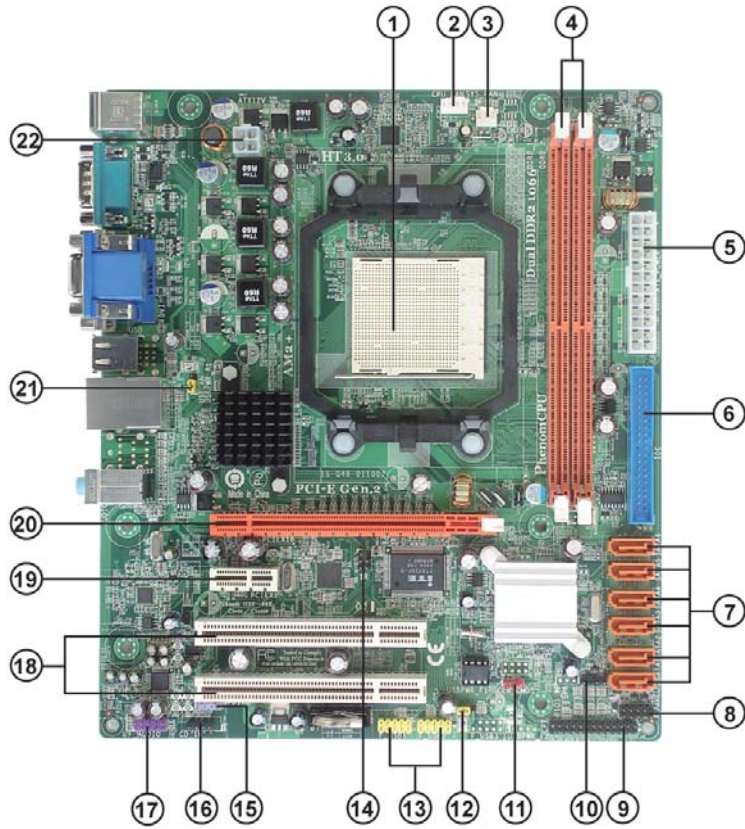


1. Some hardware specifications and software items are subject to change without prior notice.

2. Due to chipset limitation, we recommend that motherboard be operated in the ambience between 0 and 50 °C.

Introducing the Motherboard

## Motherboard Components



Introducing the Motherboard

*Table of Motherboard Components*

<b>LABEL</b>	<b>COMPONENTS</b>
1. CPU Socket	Socket for AMD Phenom™ processor (socket AM2+)/AMD Athlon™ 64 X2 Dual-Core/Athlon™ 64/Sempron™ processors
2. CPU_FAN	CPU cooling fan connector
3. SYS_FAN	System cooling fan connector
4. DDR2_1~2	240-pin DDR2 SDRAM slots
5. ATX_POWER	Standard 24-Pin ATX Power connector
6. IDE	Primary IDE connector
7. SATA1~6	Serial ATA connectors
8. F_PANEL	Front Panel Switch/LED header
9. LPT	Onboard parallel port header
10. SPK	Speaker header
11. CLR_CMOS	Clear CMOS jumper
12. USBPWR_F1	Front Panel USB Power Select Jumper
13. F_USB1~2	Front Panel USB headers
14. IR	Infrared header
15. SPDIFO	SPDIF out header
16. CD_IN	Analog audio input connector
17. F_AUDIO	Front Panel Audio header
18. PCI1~2	32-bit add-on card slots
19. PCIEX1	PCI Express x1 slot
20. PCIEX16	PCI Express x16 graphics card slot
21. USBPWR_R1	Rear Panel USB PS/2 Power Select Jumper
22. ATX12V	4-pin +12V power connector

This concludes Chapter 1. The next chapter explains how to install the motherboard.

*Memo*

Introducing the Motherboard

## Chapter 2

### *Installing the Motherboard*

---

#### **Safety Precautions**

- Follow these safety precautions when installing the motherboard
- Wear a grounding strap attached to a grounded device to avoid damage from static electricity
- Discharge static electricity by touching the metal case of a safely grounded object before working on the motherboard
- Leave components in the static-proof bags they came in
- Hold all circuit boards by the edges. Do not bend circuit boards

#### **Choosing a Computer Case**

There are many types of computer cases on the market. The motherboard complies with the specifications for the Micro ATX system case. Firstly, some features on the motherboard are implemented by cabling connectors on the motherboard to indicators and switches on the system case. Make sure that your case supports all the features required. Secondly, this motherboard supports two enhanced IDE drives. Make sure that your case has sufficient power and space for all drives that you intend to install.

Most cases have a choice of I/O templates in the rear panel. Make sure that the I/O template in the case matches the I/O ports installed on the rear edge of the motherboard.

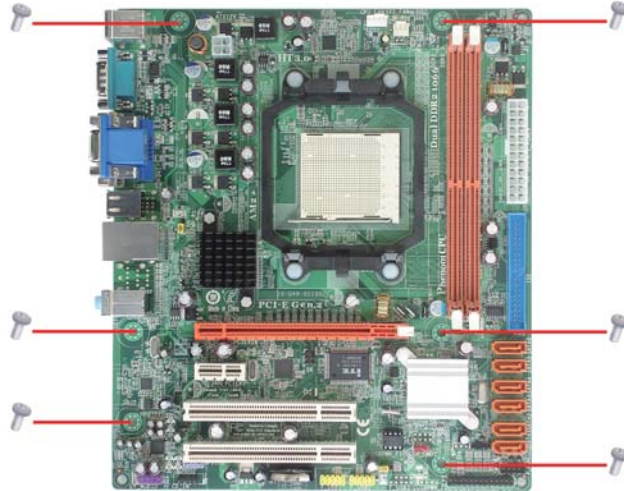
This motherboard carries a Micro ATX form factor of 244 X 210 mm. Choose a case that accommodates this form factor.

#### **Installing the Motherboard in a Case**

Refer to the following illustration and instructions for installing the motherboard in a case.

Most system cases have mounting brackets installed in the case, which correspond to the holes in the motherboard. Place the motherboard over the mounting brackets and secure the motherboard onto the mounting brackets with screws.

Ensure that your case has an I/O template that supports the I/O ports and expansion slots on your motherboard.



*Do not over-tighten the screws as this can stress the motherboard.*

## Checking Jumper Settings

This section explains how to set jumpers for correct configuration of the motherboard.

### *Setting Jumpers*

Use the motherboard jumpers to set system configuration options. Jumpers with more than one pin are numbered. When setting the jumpers, ensure that the jumper caps are placed on the correct pins.

The illustrations show a 2-pin jumper. When the jumper cap is placed on both pins, the jumper is **SHORT**. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is **OPEN**.

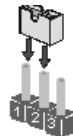


**SHORT**



**OPEN**

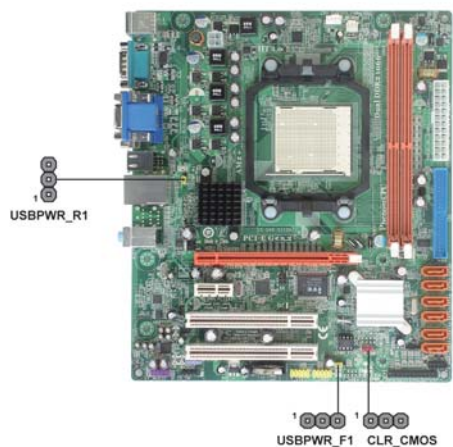
This illustration shows a 3-pin jumper. Pins 1 and 2 are **SHORT**.






Installing the Motherboard

### Checking Jumper Settings

The following illustration shows the location of the motherboard jumpers. Pin 1 is labeled.



### Jumper Settings

Jumper	Type	Description	Setting (default)	
CLR_CMOS	3-pin	CLEAR CMOS	1-2: NORMAL 2-3: CLEAR Before clearing the CMOS, make sure to turn the system off.	 1 <b>CLR_CMOS</b>
USBPWR_R1	3-pin	Rear USB/PS2 Power Select Jumper	1-2: VCC 2-3: 5VSB	 1 <b>USBPWR_R1</b>
USBPWR_F1	3-pin	Front Panel USB Power Select Jumper	1-2: VCC 2-3: 5VSB	 1 <b>USBPWR_F1</b>



1. To avoid the system instability after clearing CMOS, we recommend users to enter the main BIOS setting page to "Load Default Settings" and then "Save & Exit Setup".
2. Make sure the power supply provides enough VCC5\_DUAL voltage before selecting the VCC5\_DUAL function.
3. It is required that users place the USBPWR\_F & USBPWR\_R cap onto 2-3 pin rather than 1-2 pin as default if you want to wake up the computer by USB/PS2 KB/Mouse.

### Installing the Motherboard

## Installing Hardware

### *Installing the Processor*



*Caution: When installing a CPU heatsink and cooling fan make sure that you DO NOT scratch the motherboard or any of the surface-mount resistors with the clip of the cooling fan. If the clip of the cooling fan scrapes across the motherboard, you may cause serious damage to the motherboard or its components.*

*On most motherboards, there are small surface-mount resistors near the processor socket, which may be damaged if the cooling fan is carelessly installed.*

*Avoid using cooling fans with sharp edges on the fan casing and the clips. Also, install the cooling fan in a well-lit work area so that you can clearly see the motherboard and processor socket.*

### **Before installing the Processor**

This motherboard automatically determines the CPU clock frequency and system bus frequency for the processor. You may be able to change these settings by making changes to jumpers on the motherboard, or changing the settings in the system Setup Utility. We strongly recommend that you do not over-clock processors or other components to run faster than their rated speed.



*Warning:*

*1. Over-clocking components can adversely affect the reliability of the system and introduce errors into your system. Over-clocking can permanently damage the motherboard by generating excess heat in components that are run beyond the rated limits.*

*2. Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components.*

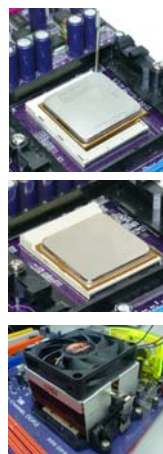
This motherboard has a socket AM2+/AM2 processor socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.



## CPU Installation Procedure

The following illustration shows CPU installation components.

- 1 Unhook the locking lever of the CPU socket. Pull the locking lever away from the socket and raising it to the upright position.
- 2 Match the pin1 corner marked as the beveled edge on the CPU with the pin1 corner on the socket. Insert the CPU into the socket. Do not use force.
- 3 Push the locking lever down and hook it under the latch on the edge of socket.
- 4 Apply thermal grease to the top of the CPU.
- 5 Install the cooling fan/heatsink unit onto the CPU, and secure them all onto the socket base.
- 6 Plug the CPU fan power cable into the CPU fan connector (CPU\_FAN) on the motherboard.



*To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 4800 rpm at least. CPU fan and heatsink installation procedures may vary with the type of CPU fan/heatsink supplied. The form and size of fan/heatsink may also vary.*

### ***Installing Memory Modules***

This motherboard accommodates two memory modules. It can support two 240-pin DDR2 1066 (AM2+)/800/667/533/400. The total memory capacity is 16 GB\*.

#### **DDR2 SDRAM memory module table**

Memory module	Memory Bus
<b><i>DDR2 400</i></b>	<b><i>200 MHz</i></b>
<b><i>DDR2 533</i></b>	<b><i>266 MHz</i></b>
<b><i>DDR2 667</i></b>	<b><i>333 MHz</i></b>
<b><i>DDR2 800</i></b>	<b><i>400 MHz</i></b>
<b><i>DDR2 1066</i></b>	<b><i>533 MHz</i></b>

You must install at least one module in any of the two slots. Each module can be installed with 8 GB of memory; total memory capacity is 16 GB\*.

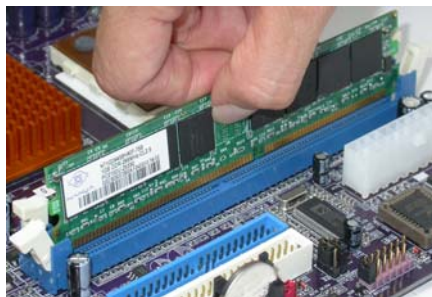


*Do not remove any memory module from its antistatic packaging until you are ready to install it on the motherboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the modules.*

### **Installation Procedure**

Refer to the following to install the memory modules.

- 1 This motherboard supports unbuffered DDR2 SDRAM only.
- 2 Push the latches on each side of the DIMM slot down.
- 3 Align the memory module with the slot. The DIMM slots are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.
- 4 Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.
- 5 Install the DIMM module into the slot and press it firmly down until it seats correctly. The slot latches are levered upwards and latch on to the edges of the DIMM.
- 6 Install any remaining DIMM modules.



Installing the Motherboard

**Table A: Unbuffered DIMM Support for Socket AM2+/AM2 CPU**

DRAM Speed	DIMM1 <sup>1</sup>	DIMM2 <sup>1</sup>	Timing Mode
DDR2-400	-	Any	1T
DDR2-400	Any	Any	2T
DDR2-533	-	Any	1T
DDR2-533	SRx16	SRx16	2T
	SRx16	SRx8	
	SRx8	SRx16	
DDR2-533	SRx8	SRx8	2T
DDR2-533	DRx8	DRx8	2T
DDR2-533	DRx8	SRx16	2T
	SRx16	DRx8	
DDR2-533	DRx8	SRx8	2T
	SRx8	DRx8	
DDR2-667	-	Any	1T
DDR2-667	SRx16	SRx16	2T
	SRx16	SRx8	
	SRx8	SRx16	
DDR2-667	SRx8	SRx8	2T
DDR2-667	DRx8	DRx8	2T
DDR2-667	DRx8	SRx16	2T
	SRx16	DRx8	
DDR2-667	DRx8	SRx8	2T
	SRx8	DRx8	
DDR2-800	-	Any	2T
DDR2-800	Any	Any	2T
<sup>1</sup> SRx16=Single Rank x16 DIMM SRx8=Single Rank x8 DIMM DRx16=Dual Rank x16 DIMM DRx8=Dual Rank x8 DIMM			



The default value is ungangned mode when using socket AM2+ CPU.

**Table B: DDR2 (memory module) QVL (Qualified Vendor List)**

The following DDR2 1066 (AM2+)/800/667/533/400 memory modules have been tested and qualified for use with this motherboard.

Type	Size	Vendor	Module Name	
DDR2 400	256 MB	Samsung	M378T3354BZ0-CCC K4T51163QB-ZCCC	
	512 MB	Samsung	M378T6553BG0-CCC K4T51083QB-GCCC	
		TwinMos	Samsung K4T51083QB-GCCC	
DDR2 533	256 MB	Corsair	VC256MB533D2 4PB1 1D9CHM	
		Elpida	Japan E2508AA-T7F-E	
		Kingmax	Hynix HY5PS121621	
		Nanya	Nanya NT5TU32M16A G-37B	
		Ramaxel	5PB42 D9DCD	
			Elpida D5116AF-5C-E	
		512 MB	Aeneon	Aeneon AET93F370 DS
	Aeneon AET94F370 SS			
	Corsair		Samsung K4T51083QB-ZCD5	
			VS512MB533D2 64M8CEC	
	Elpida		Elpida 04180WB01	
	Hynix		Hynix HY5PS12821	
	Infineon		HY818T512800AF37 33346778	
			Hynix HY5PS12821	
	Kingston		Nanya NT5TU64M8AE-37B	
			5PB32 D9DCN	
	Ramaxel		6AD11 D9GCT	
			Elpida E5108AG-5C-E	
			PC2-4200U-4444-12-DS K4T51083QC	
	Samsung		PC2-4200U-4444-10-B1 K4T51083QF-ZCD5	
		Elpida E5108AB-5C-E		
	Twinmos	Samsung 8D22JB-KM		
		Apacer	Elpida E5108AB-5C-E	
	1 GB	GEIL	A016E2864T2AG8AKT5H120001	
		Infineon	HY818T512800AF37 33344539	
		Kingmax	KKEA88E4AAKG-37	
		UMAX	U2S12D30TP-5C	
		Infineon	HYS64T325001HU-3-A HYB18T256	
	DDR2 667	256 MB	Ramaxel	5NB31 D9DCG
			A-DATA	AD29608A88-3EG
		512 MB	Corsair	64M8CFE PS1000545
				Corsair K4T5108QC
				VALUE SELECT 32M8CEC
GEIL			GL2L64M088BA18W	
Infinity			0547W64M8 PC5300	
Ramxel			5L31 D9DCL	
Samsung			K4T51083QC	
Sync MAX			04400WB01 R050008A	
Transcend			JetRam J12Q3AB-6	
			SEL520ZCE6 K4T51083QC	
Twinmos		TMM6208G8M30B		
1 GB		Apacer	AM4B5708GQJS7E0631F	
			Elpida 1GB AM4B5708G EWS7E-0637F	
		Infineon	Aeneon AET93E30RB-0650 1GB	
HYB18T512800BF3S				
2 GB		LeadMax	LeadMax LD5PS1G831	

Installing the Motherboard

Type	Size	Vendor	Module Name
DDR2 800	512 MB	Apacer	AHU512E800C5K1C
		CORSAIR	CM2X1024-6400PRO
		Infineon	HYS64T64020HU-2.5-A HYB18T256 800AF25
		Infinity	04701G16CZ5U2G
			04751208CZ5U2D
		Sync MAX	U538H8G09DHL
		UMAX	U2S12D30TP-8E

Type	Size	Vendor	Module Name	Memory Recommend Volt
DDR2 1066	512 MB	Kingston	KVR1066D2N7/512 1.8V/ 9905315-094.A00LF	1.8 V
	1 GB	Kingston	KVR1066D2N7/1G 1.8V/ 9905316-106.A01LF	1.8 V
		Micron	MT8HTF12864AY-1GAE1	1.9 V
		OCZ	OCZ2RPR10662GK	1.9 V ~ 2.3 V
		Qimonda	HYS64T128020EU-19F-C	1.9 V
	2 GB	Micron	MT16HTF25664AY-1GAE1	1.9 V



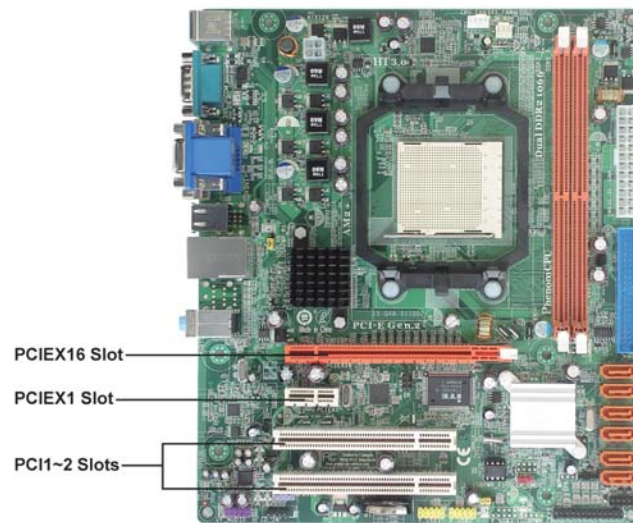
Due to the Phenom CPU and memory module limitation, the DRAM may need to adjust the voltage for supporting DDR2 1066. The memory modules which can be used stably are listed in the above QVL table for reference.

## Installing the Motherboard

## Expansion Slots

### Installing Add-on Cards

The slots on this motherboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the motherboard's features and capabilities. With these efficient facilities, you can increase the motherboard's capabilities by adding hardware that performs tasks that are not part of the basic system.



**PCIEX16 Slot** The PCI Express x16 slot is used to install an external PCI Express graphics card that is fully compliant to the PCI Express® Generation 2.0.

**PCIEX1 Slot** The PCI Express x1 slot is fully compliant to the PCI Express® Generation 2.0.

**PCI1~2 Slots** This motherboard is equipped with two standard PCI slots. PCI stands for Peripheral Component Interconnect and is a bus standard for expansion cards, which for the most part, is a supplement of the older ISA bus standard. The PCI slots on this board are PCI v2.3 compliant.

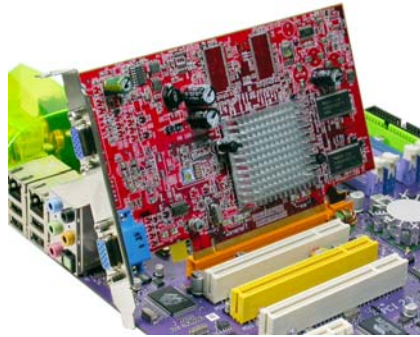


*Before installing an add-on card, check the documentation for the card carefully. If the card is not Plug and Play, you may have to manually configure the card before installation.*

## Installing the Motherboard

Follow these instructions to install an add-on card:

- 1 Remove a blanking plate from the system case corresponding to the slot you are going to use.
- 2 Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.
- 3 Secure the metal bracket of the card to the system case with a screw.

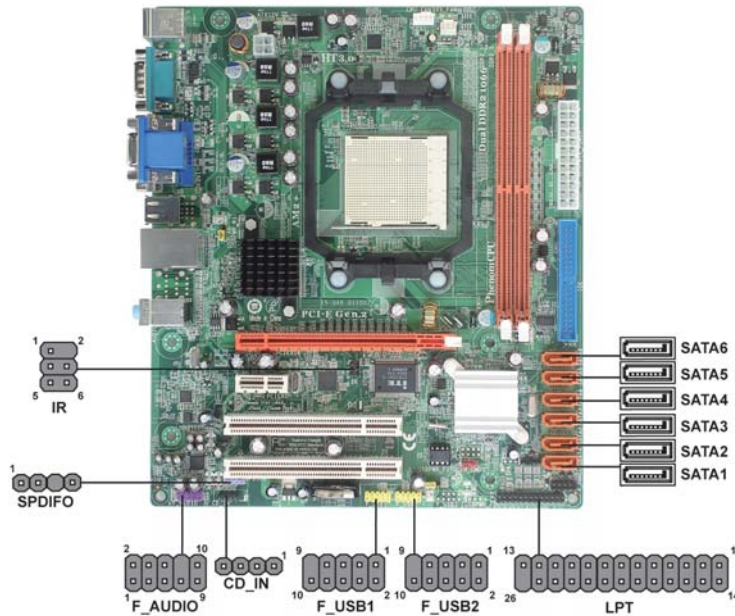


*For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.*

Installing the Motherboard

### Connecting Optional Devices

Refer to the following for information on connecting the motherboard's optional devices:



#### F\_AUDIO: Front Panel Audio header

This header allows the user to install auxiliary front-oriented microphone and line-out ports for easier access.

Pin	Signal Name	Pin	Signal Name
1	PORT 1L	2	AUD_GND
3	PORT 1R	4	PRESENCE#
5	PORT 2R	6	SENSE1_RETURN
7	SENSE_SEND	8	KEY
9	PORT 2L	10	SENSE2_RETURN

#### SPDIFO: SPDIF out header

This is an optional header that provides an S/PDIF (Sony/Philips Digital Interface) output to digital multimedia device through optical fiber or coaxial connector.

Pin	Signal Name	Function
1	SPDIF	SPDIF digital output
2	+5VA	5V analog Power
3	Key	No pin
4	GND	Ground



### SATA1~6: Serial ATA connectors

These connectors are used to support the new Serial ATA devices for the highest data transfer rates (3.0 Gb/s), simpler disk drive cabling and easier PC assembly. It eliminates limitations of the current Parallel ATA interface. But maintains register compatibility and software compatibility with Parallel ATA.

Pin	Signal Name	Pin	Signal Name
1	Ground	2	TX+
3	TX-	4	Ground
5	RX-	6	RX+
7	Ground	-	-

### F\_USB1~2: Front Panel USB headers

The motherboard has four USB ports installed on the rear edge I/O port array. Additionally, some computer cases have USB ports at the front of the case. If you have this kind of case, use auxiliary USB connector to connect the front-mounted ports to the motherboard.

Pin	Signal Name	Function
1	USBPWR	Front Panel USB Power
2	USBPWR	Front Panel USB Power
3	USB_FP_P0-	USB Port 0 Negative Signal
4	USB_FP_P1-	USB Port 1 Negative Signal
5	USB_FP_P0+	USB Port 0 Positive Signal
6	USB_FP_P1+	USB Port 1 Positive Signal
7	GND	Ground
8	GND	Ground
9	Key	No pin
10	USB_FP_OC0	Overcurrent signal



*Please make sure that the USB cable has the same pin assignment as indicated above. A different pin assignment may cause damage or system hang-up.*

### CD\_IN: Analog audio input connector

Pin	Signal Name	Function
1	CD_L	Left CD-in signal
2	GND	Ground
3	GND	Ground
4	CD_R	Right CD-in signal

**IR: Infrared header**

The motherboard supports an Infrared (IR) data port. Infrared ports allow the wireless exchange of information between your computer and similarly equipped devices such as printers, laptops, Personal Digital Assistants (PDAs), and other computers.

Pin	Signal Name	Function
1	Not Assigned	Not assigned
2	Key	No pin
3	+5V	IR Power
4	GND	Ground
5	IR_TX	IrDA serial output
6	IR_RX	IrDA serial input

**LPT: Onboard parallel port header**

This is a header that can be used to connect to the printer, scanner or other devices.

Pin	Signal Name	Function	Pin	Signal Name	Function
1	STB#	Strobe	2	D0	Data 0
3	D1	Data 1	4	D2	Data 2
5	D3	Data 3	6	D4	Data 4
7	D5	Data 5	8	D6	Data 6
9	D7	Data 7	10	ACK#	Acknowledge
11	BUSY	Busy	12	PE	Paper End
13	SLCT	Select	14	AFD#	Auto Feed
15	ERR#	Error	16	INIT#	Initialize
17	SLIN#	Select In	18	GND	Chassis Ground
19	GND	Chassis Ground	20	GND	Chassis Ground
21	GND	Chassis Ground	22	GND	Chassis Ground
23	GND	Chassis Ground	24	GND	Chassis Ground
25	GND	Chassis Ground	26	NC	No pin

## ***Installing a Hard Disk Drive/CD-ROM/SATA Hard Drive***

This section describes how to install IDE devices such as a hard disk drive and a CD-ROM drive.

### **About IDE Devices**

Your motherboard has one IDE interface. An IDE ribbon cable supporting two IDE devices is bundled with the motherboard.



*You must orient the cable connector so that the pin1 (color) edge of the cable corresponds to the pin 1 of the I/O port connector.*

### **IDE: IDE Connector**

This motherboard supports six high data transfer SATA ports with each runs up to 3.0 Gb/s. To get better system performance, we recommend users connect the CD-ROM to the IDE channel, and set up the hard drives on the SATA ports.



IDE devices enclose jumpers or switches used to set the IDE device as MASTER or SLAVE. Refer to the IDE device user's manual. Installing two IDE devices on one cable, ensure that one device is set to MASTER and the other device is set to SLAVE. The documentation of your IDE device explains how to do this.

### **About SATA Connectors**

Your motherboard features six SATA connectors supporting a total of six drives. SATA refers to Serial ATA (Advanced Technology Attachment) is the standard interface for the IDE hard drives which are currently used in most PCs. These connectors are well designed and will only fit in one orientation. Locate the SATA connectors on the motherboard and follow the illustration below to install the SATA hard drives.

### **Installing Serial ATA Hard Drives**

To install the Serial ATA (SATA) hard drives, use the SATA cable that supports the Serial ATA protocol. This SATA cable comes with a SATA power cable. You can connect either end of the SATA cable to the SATA hard drive or the connector on the motherboard.



**SATA cable** (optional)



**SATA power cable** (optional)

Installing the Motherboard

Refer to the illustration below for proper installation:

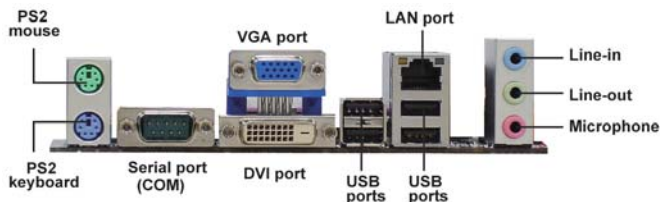
- 1 Attach either cable end to the connector on the motherboard.
- 2 Attach the other cable end to the SATA hard drive.
- 3 Attach the SATA power cable to the SATA hard drive and connect the other end to the power supply.



*This motherboard supports the “Hot-Plug” function.*

## Connecting I/O Devices

The backplane of the motherboard has the following I/O ports:



**PS2 Mouse** Use the upper PS/2 port to connect a PS/2 pointing device.

**PS2 Keyboard** Use the lower PS/2 port to connect a PS/2 keyboard.

**Serial Port (COM)** Use the COM port to connect serial devices such as mouse or fax/modems.

**VGA Port** Connect your monitor to the VGA port.

**DVI Port** Connect the DVI port to connect the monitor.

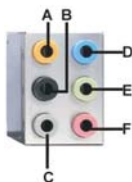
**USB Ports** Use the USB ports to connect USB devices.

**LAN Port** Connect an RJ-45 jack to the LAN port to connect your computer to the network.

**Audio Ports (optional)** Use the three audio ports to connect audio devices. The first jack is for stereo line-in signal. The second jack is for stereo line-out signal. The third jack is for microphone.



This motherboard supports 8-channel audio devices that correspond to the A,B, C, and E port respectively. In addition, all of the 3 ports, B, C, and E provide users with both right & left channels individually. Users please refer to the following note for specific port function definition.



A: Center & Woofers	D: Line-in
B: Back Surround	E: Front Out
C: Side Surround	F: Mic_in Rear

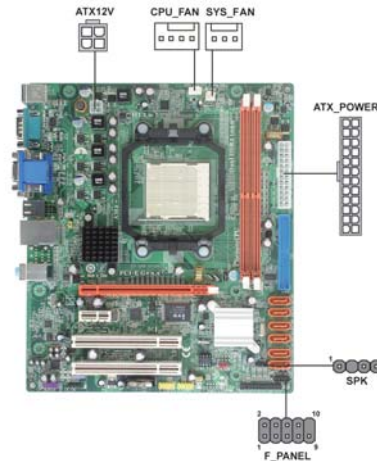
*The above port definition can be changed to audio input or audio output by changing the driver utility setting.*

## Installing the Motherboard

## Connecting Case Components

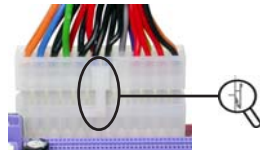
After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:

- 1 Connect the CPU cooling fan cable to **CPU\_FAN**.
- 2 Connect the standard power supply connector to **ATX\_POWER**.
- 3 Connect the case speaker cable to **SPK**.
- 4 Connect the case switches and indicator LEDs to the **F\_PANEL**.
- 5 Connect the system cooling fan connector to **SYS\_FAN**.
- 6 Connect the auxiliary case power supply connector to **ATX12V**.



### 1. Connecting 24-pin power cable

The ATX 24-pin connector allows you to connect to ATX v2.x power supply.



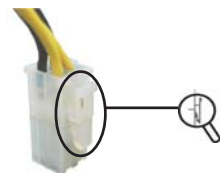
*24-pin power cable*

With ATX v2.x power supply, users please note that when installing 24-pin power cable, the latches of power cable and the ATX\_POWER match perfectly.



### 2. Connecting 4-pin power cable

The ATX12V power connector is used to provide power to the CPU.



*4-pin power cable*

When installing 4-pin power cable, the latches of power cable and the ATX12V match perfectly.

**CPU\_FAN: FAN Power Connector**

Pin	Signal Name	Function
1	GND	System Ground
2	+12V	Power +12V
3	Sense	Sensor
4	PWM	CPU FAN control



Users please note that the fan connector supports the CPU cooling fan of 1.1A~2.2A (26.4W max.) at +12V.

**SYS\_FAN: FAN Power Connector**

Pin	Signal Name	Function
1	GND	System Ground
2	+12V	Power +12V
3	Sense	Sensor

**ATX\_POWER: ATX 24-pin Power Connector**

Pin	Signal Name	Pin	Signal Name
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	Ground	15	COM
4	+5V	16	PS_ON
5	Ground	17	COM
6	+5V	18	COM
7	Ground	19	COM
8	PWRGD	20	-5V
9	+5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	COM

**ATX12V: ATX 12V Power Connector**

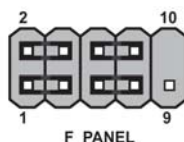
Pin	Signal Name
1	Ground
2	Ground
3	+12V
4	+12V

**SPK: Internal speaker**

Pin	Signal Name
1	VCC
2	Key
3	NC
4	Signal

**Front Panel Header**

The front panel header (F\_PANEL) provides a standard set of switch and LED headers commonly found on ATX or Micro ATX cases. Refer to the table below for information:



Pin	Signal	Function	Pin	Signal	Function
1	HD_LED_P	Hard disk LED (+)	2	FP PWR/SLP	*MSG LED (+)
3	HD_LED_N	Hard disk LED (-)	4	FP PWR/SLP	*MSG LED (-)
5	RST_SW_N	Reset Switch (-)	6	PWR_SW_P	Power Switch (+)
7	RST_SW_P	Reset Switch (+)	8	PWR_SW_N	Power Switch (-)
9	RSVD	Reserved	10	Key	No pin

\* MSG LED (dual color or single color)

**Hard Drive Activity LED**

Connecting pins 1 and 3 to a front panel mounted LED provides visual indication that data is being read from or written to the hard drive. For the LED to function properly, an IDE drive should be connected to the onboard IDE interface. The LED will also show activity for devices connected to the SCSI (hard drive activity LED) connector.

**Power/Sleep/Message waiting LED**

Connecting pins 2 and 4 to a single or dual-color, front panel mounted LED provides power on/off, sleep, and message waiting indication.

**Reset Switch**

Supporting the reset function requires connecting pin 5 and 7 to a momentary-contact switch that is normally open. When the switch is closed, the board resets and runs POST.

**Power Switch**

Supporting the power on/off function requires connecting pins 6 and 8 to a momentary-contact switch that is normally open. The switch should maintain contact for at least 50 ms to signal the power supply to switch on or off. The time requirement is due to internal de-bounce circuitry. After receiving a power on/off signal, at least two seconds elapses before the power supply recognizes another on/off signal.

This concludes Chapter 2. The next chapter covers the BIOS.

## Installing the Motherboard



## Chapter 3

### *Using BIOS*

---

#### **About the Setup Utility**

The computer uses the latest “American Megatrends Inc.” BIOS with support for Windows Plug and Play. The CMOS chip on the motherboard contains the ROM setup instructions for configuring the motherboard BIOS.

The BIOS (Basic Input and Output System) Setup Utility displays the system’s configuration status and provides you with options to set system parameters. The parameters are stored in battery-backed-up CMOS RAM that saves this information when the power is turned off. When the system is turned back on, the system is configured with the values you stored in CMOS.

The BIOS Setup Utility enables you to configure:

- Hard drives, diskette drives and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power Management features

The settings made in the Setup Utility affect how the computer performs. Before using the Setup Utility, ensure that you understand the Setup Utility options.

This chapter provides explanations for Setup Utility options.

#### ***The Standard Configuration***

A standard configuration has already been set in the Setup Utility. However, we recommend that you read this chapter in case you need to make any changes in the future.

This Setup Utility should be used:

- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- when making changes to the Power Management configuration
- when changing the password or making other changes to the Security Setup

#### ***Entering the Setup Utility***

When you power on the system, BIOS enters the Power-On Self Test (POST) routines. POST is a series of built-in diagnostics performed by the BIOS. After the POST routines are completed, the following message appears:

Using BIOS

***Press DEL to enter SETUP***

Press the delete key to access the BIOS Setup Utility.

CMOS Setup Utility -- Copyright (C) 1985-2007, American Megatrends, Inc.

<ul style="list-style-type: none"> <li>▶ Standard CMOS Setup</li> <li>▶ Advanced Setup</li> <li>▶ Advanced Chipset Setup</li> <li>▶ Integrated Peripherals</li> <li>▶ Power Management Setup</li> <li>▶ PCI/PnP Setup</li> <li>▶ PC Health Status</li> </ul>	<ul style="list-style-type: none"> <li>▶ Frequency/Voltage Control</li> <li>Load Default Settings</li> <li>▶ Supervisor Password</li> <li>▶ User Password</li> <li>Save &amp; Exit Setup</li> <li>Exit Without Saving</li> </ul>
↑↓ → ←: Move    Enter: Select    +/-: Value    F10: Save    ESC: Exit F1: General Help    F9: Default settings	
v02.61 (C) Copyright 1985-2007, American Megatrends, Inc.	

***BIOS Navigation Keys***

The BIOS navigation keys are listed below:

KEY	FUNCTION
<b>ESC</b>	Exits the current menu
↑↓ → ←	Scrolls through the items on a menu
<b>+/-/PU/PD</b>	Modifies the selected field's values
<b>Enter</b>	Select
<b>F9</b>	Loads an optimized setting for better performance
<b>F10</b>	Saves the current configuration and exits setup
<b>F1</b>	Displays a screen that describes all key functions

### ***Updating the BIOS***

You can download and install updated BIOS for this motherboard from the manufacturer's Web site. New BIOS provides support for new peripherals, improvements in performance, or fixes for known bugs. Install new BIOS as follows:

- 1 If your motherboard has a BIOS protection jumper, change the setting to allow BIOS flashing.
- 2 If your motherboard has an item called Firmware Write Protect in Advanced BIOS features, disable it. (Firmware Write Protect prevents BIOS from being overwritten.)
- 3 Create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)
- 4 Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the system diskette you created in Step 3.
- 5 Turn off your computer and insert the system diskette in your computer's diskette drive. (You might need to run the Setup Utility and change the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the floppy diskette drive first.)
- 6 At the A:\ prompt, type the Flash Utility program name and the file name of the new bios and then press <Enter>. Example: AMINF340.EXE 040706.ROM
- 7 When the installation is complete, remove the floppy diskette from the diskette drive and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten. The computer will restart automatically.

### **Using BIOS**

When you start the Setup Utility, the main menu appears. The main menu of the Setup Utility displays a list of the options that are available. A highlight indicates which option is currently selected. Use the cursor arrow keys to move the highlight to other options. When an option is highlighted, execute the option by pressing <Enter>.

Some options lead to pop-up dialog boxes that prompt you to verify that you wish to execute that option. Other options lead to dialog boxes that prompt you for information.

Some options (marked with a triangle ►) lead to submenus that enable you to change the values for the option. Use the cursor arrow keys to scroll through the items in the submenu.

In this manual, default values are enclosed in parenthesis. Submenu items are denoted by a triangle ►.

### Standard CMOS Setup

This option displays basic information about your system.

CMOS Setup Utility -- Copyright (C) 1985-2007, American Megatrends, Inc.  
Standard CMOS Setup

Date	Sat 03/22/2008	Help Item
Time	20:44:15	
▶ SATA 1	Not Detected	User [Enter], [TAB] or [SHIFT-TAB] to select a field.
▶ SATA 2	Not Detected	
▶ SATA 3	Not Detected	Use [+] or [-] to configure system Date.
▶ SATA 4	Not Detected	
▶ SATA 5	Not Detected	
▶ SATA 6	Not Detected	
▶ IDE Master	Not Detected	
▶ IDE Slave	Not Detected	
IDE BusMaster	Enabled	

↑↓ ↔ : Move Enter: Select +/-: Value F10: Save ESC: Exit  
F1: General Help F9: Default settings

### Date & Time

The Date and Time items show the current date and time on the computer. If you are running a Windows OS, these items are automatically updated whenever you make changes to the Windows Date and Time Properties utility.

### ▶ SATA1~6, IDE Master/Slave

Your computer has one IDE channel which can be installed with one or two devices (Master and Slave). In addition, this motherboard supports six SATA channels and each channel allows one SATA device to be installed. Use these items to configure each device on the IDE channel.

CMOS SETUP UTILITY -- Copyright (C) 1985-2007, American Megatrends, Inc.  
SATA 1

SATA	Help Item
Device : Not Detected	Disabled: Disables LBA Mode. Auto: Enables LBA Mode if the device supports it and the device is not already formatted with LBA Mode disabled.
LBA/Large Mode <input type="text" value="Auto"/>	
Block (Multi-Sector Transfer) <input type="text" value="Auto"/>	
PIO Mode <input type="text" value="Auto"/>	
DMA Mode <input type="text" value="Auto"/>	
S.M.A.R.T <input type="text" value="Auto"/>	
32Bit Data Transfer <input type="text" value="Enabled"/>	

↑↓ → ←: Move Enter: Select +/-: Value F10: Save ESC: Exit  
F1: General Help F9: Default settings

### **LBA/Large Mode (Auto)**

Use this item to set the LBA/Large mode to enhance hard disk performance by optimizing the area the hard disk is visited each time.

Using BIOS

**Block (Multi-Sector Transfer (Auto))**

If the feature is enabled, it will enhance hard disk performance by reading or writing more data during each transfer.

**PIO Mode (Auto)**

Use this item to set the PIO mode to enhance hard disk performance by optimizing the hard disk timing.

**DMA Mode (Auto)**

DMA capability allows user to improve the transfer-speed and data-integrity for compatible IDE devices.

**S.M.A.R.T. (Auto)**

The S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) system is a diagnostics technology that monitors and predicts device performance. S.M.A.R.T. software resides on both the disk drive and the host computer.

**32Bit Data Transfer (Enabled)**

Use this item to set the onboard SATA-IDE channel to be disabled, IDE, or RAID.

Press <Esc> to return to the Standard CMOS Setup page.

**IDE BusMaster (Enabled)**

This item enables or disables the DMA under DOS mode. We recommend you to leave this item at the default value.

Press <Esc> to return to the main menu setting page.

## Advanced Setup

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.

CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.  
Advanced Setup

		Help Item
HT Frequency	Auto	
CPU Virtualization	Enabled	
AMD C&Q	Enabled	
Enhanced Halt (C1E)	Enable	
Quick Power on Self Test	Enabled	
Boot Up Numlock Status	ON	
APIC Mode	Enabled	
1st Boot Device	Hard Drive	
2nd Boot Device	CD/DVD	
3rd Boot Device	Removable Dev.	
Boot Other Device	Yes	
		Options
		Disabled
		Enable

↑↓ ↔ : Move   Enter : Select   +/- : Value   F10: Save   ESC: Exit  
F1: General Help   F9: Default settings

### HT Frequency (Auto)

This item enables users to adjust the HT frequency. The default setting is auto and we recommend users leave the setting unchanged. Modify it at will may cause the system to be unstable.

### CPU Virtualization (Enabled)

Hardware Virtualization Technology enables processor feature for running multiple simultaneous Virtual Machines allowing specialized software applications to run in full isolation of each other.

### AMD C&Q (Enabled)

This item helps the system to lower the frequency when CPU idles. When the frequency decreases, the temperature will drop automatically as well.

### Enhanced Halt (C1E) (Enabled)

This item enables or disables enhanced halt.

### Quick Power on Self Test (Enabled)

Enable this item to shorten the power on testing (POST) and have your system start up faster. You might like to enable this item after you are confident that your system hardware is operating smoothly.

### Boot Up Numlock Status (ON)

This item defines if the keyboard Num Lock key is active when your system is started.

### APIC Mode (Enabled)

This item allows you to enable or disable the APCI (Advanced Programmable Interrupt Controller) mode. APIC provides symmetric multi-processing (SMP) for systems, allowing support for up to 60 processors.

**1st/2nd/3rd Boot Device (Hard Drive/CD/DVD/Removable Dev.)**

Use this item to determine the device order the computer used to look for an operating system to load at start-up time. The devices showed here will be different depending on the exact devices installed on your motherboard.

**Boot Other Device (Yes)**

When enabled, the system searches all other possible locations for an operating system if it fails to find one in the devices specified under the First, Second and Third boot devices.

Press <Esc> to return to the main menu setting page.

### Advanced Chipset Setup

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.

CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.  
Advanced Chipset Setup

Share Memory Auto Detection	Enabled	Help Item
Init Display First	PCI	Options
DCT Unganged Mode	Enabled	Disabled
HDMI Audio	Enabled	Enabled

↑↓ ↔ : Move    Enter : Select    +/- : Value    F10: Save    ESC: Exit  
F1: General Help    F9: Default settings

#### Share Memory Auto Detection (Enabled)

Disable this item to set the Share Memory Size. And if the item is set to Auto, Share Memory Size can be controlled according to the dram size. When the dram size is less than 512 MB, Share Memory Size should be set to 64 MB. While between 512 MB and 1 GB, it should be set to 128 MB. When more than 1 GB, it should be set to 256 MB.

#### Init Display First (PCI)

Use this item to select which graphics controller to use as the primary boot devices.

#### DCT Unganged Mode (Enabled)

This item is used to select the DCT mode (DRAM Controller mode).

#### HDMI Audio (Enabled)

This item is used to enable or disable the NB HDMI audio support.

Press <Esc> to return to the main menu setting page.



## Integrated Peripherals

This page sets up some parameters for peripheral devices connected to the system.

CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.  
Integrated Peripherals

Onboard IDE Controller	Enabled	Help Item
Onboard SATA Mode	Enabled	
SATA Configuration	IDE	
Onboard AUDIO Function	Enabled	
Onboard LAN Function	Enabled	
Onboard LAN Boot ROM	Disabled	
Serial Port1 Address	3F8/IRQ4	
OnBoard IR	Disabled	
Parallel Port Address	378	
Parallel Port Mode	Normal	
Parallel Port IRQ	IRQ7	
USB Functions	Enabled	
Legacy USB Support	Enabled	

↑↓ ↔ : Move    Enter: Select    +/-: Value    F10: Save    ESC: Exit  
F1: General Help    F9: Default settings

### Onboard IDE Controller (Enabled)

Use this item to enable or disable the onboard IDE interface.

### Onboard SATA Mode (Enabled)

Use this item to enable or disable the build-in on-chip Serial ATA.

### SATA Configuration (IDE)

Use this item to select the type of the build-in on-chip Serial ATA.

### OnBoard AUDIO Function (Enabled)

Use this item to enable or disable the onboard Audio function.

### OnBoard LAN Function (Enabled)

Use this item to enable or disable the onboard LAN function.

### OnBoard LAN Boot ROM (Disabled)

Use this item to enable or disable the booting from the onboard LAN or a network add-in card with a remote boot ROM installed.

### Serial Port1 Address (3F8/IRQ4)

Use this item to enable or disable the onboard COM1 serial port, and to assign a port address.

### OnBoard IR (Disabled)

Use this item to enable or disable the onboard infrared port, and to assign a port address.

### Parallel Port Address (378)

Use this item to enable or disable the onboard Parallel port, and to assign a port address.

**Parallel Port Mode (Normal)**

Use this item to select the parallel port mode. You can select Normal (Standard Parallel Port), ECP (Extended Capabilities Port), EPP (Enhanced Parallel Port), or BPP (Bi-Directional Parallel Port).

**Parallel Port IRQ (IRQ7)**

Use this item to assign IRQ to the parallel port.

**USB Functions (Enabled)**

Use this item to enable or disable the USB function.

**Legacy USB Support (Enabled)**

Use this item to enable or disable support for legacy USB devices.

Press <Esc> to return to the main menu setting page.

## Power Management Setup

This page sets up some parameters for system power management operation.

CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.  
Power Management Setup

ACPI Suspend Type	S3 (STR)	Help Item
Soft-off by PWR-BTTN	Instant Off	Select the ACPI state used for System Suspend.
PWRON After PWR-Fail	Power Off	
Resume by Ring	Disabled	
Resume By PCI/PCI-E/Lan PME	Disabled	
Resume by USB (S3)	Disabled	
Resume By PS2 KB (S3)	Disabled	
Resume By PS2 MS (S3)	Disabled	
Resume on RTC Alarm	Disabled	

↑↓ → ←: Move Enter: Select +/-: Value F10: Save ESC: Exit  
F1: General Help F9: Default settings

### ACPI Suspend Type (S3(STR))

Use this item to define how your system suspends. In the default, S3, the suspend mode is a suspend to RAM, i.e., the system shuts down with the exception of a refresh current to the system memory.

### Soft-off by PWR-BTTN (Instant off)

Under ACPI (Advanced Configuration and Power management Interface) you can create a software power down. In a software power down, the system can be resumed by Wake Up Alarms. This item lets you install a software power down that is controlled by the power button on your system. If the item is set to Instant-Off, then the power button causes a software power down. If the item is set to Delay 4 Sec, then you have to hold the power button down for four seconds to cause a software power down.

### PWRON After PWR-Fail (Power Off)

This item enables your computer to automatically restart or return to its operating status.

### Resume By Ring (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the Modem. You must use an ATX power supply in order to use this feature.

### Resume By PCI/PCI-E/Lan PME (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the PCI Modem or PCI LAN card. You must use an ATX power supply in order to use this feature. Use this item to do wake-up action if inserting the PCI card.

### Resume By USB (S3) (Disabled)

This item allows you to enable/disable the USB device wakeup function from S3 mode.

Using BIOS

**Resume By PS2 KB (S3) (Disabled)**

This item enables or disables you to allow keyboard activity to awaken the system from power saving mode.

**Resume By PS2 MS (S3) (Disabled)**

This item enables or disables you to allow mouse activity to awaken the system from power saving mode.

**Resume on RTC Alarm (Disabled)**

The system can be turned off with a software command. If you enable this item, the system can automatically resume at a fixed time based on the system's RTC (realtime clock). Use the items below this one to set the date and time of the wake-up alarm. You must use an ATX power supply in order to use this feature.

Press <Esc> to return to the main menu setting page.

***PCI / PnP Setup***

This page sets up some parameters for devices installed on the PCI bus and those utilizing the system plug and play capability.

CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.  
PCI / PnP Setup

Init Display First	PCI	Help Item
		Options
		PCI-E PCI

↑↓←→: Move    Enter: Select    +/-: Value    F10: Save    ESC: Exit  
F1: General Help    F9: Default settings

**Init Display First (PCI)**

Use this item to select which graphics controller to use as the primary boot devices.

Press <Esc> to return to the main menu setting page.

### PC Health Status

On motherboards support hardware monitoring, this item lets you monitor the parameters for critical voltages, temperatures and fan speeds.

CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.  
PC Health Status

-- System Hardware Monitor --		Help Item
▶ Smart Fan Function	Press Enter	
Shutdown Temperature	Disabled	
Warning Temperature	Disabled	
CPU Temperature	: 67°C/152°F	
CPU FAN Speed	: 2689 RPM	
CPU Vcore	: 1.184 V	
VDIMM	: 1.936 V	

↑↓ ↔ : Move    Enter : Select    +/- : Value    F10: Save    ESC: Exit  
F1: General Help    F9: Default settings

#### ▶ Smart Fan Function

Scroll to this item and press <Enter> to view the following screen:

CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.  
Smart Fan Function

		Help Item
SMART FAN Control	Enabled	
SMART Fan start PWM value	40	
SMART Fan start TEMP.(°C)	50	
DeltaT1	+3	
SMART Fan Slope PWM value	4 PWM value/°C	Disabled Enabled

↑↓ → ← : Move    Enter : Select    +/- : Value    F10: Save    ESC: Exit  
F1: General Help    F9: Default settings

#### **SMART FAN Control (Enabled)**

This item allows you to enable/disable the control of the system fan speed by changing the fan voltage.

#### **SMART Fan start PWM value (40)**

This item is used to set the start PWM value of the smart fan.

#### **SMART Fan start TEMP. (°C) (50)**

This item is used to set the start temperature of the smart fan.

Using BIOS

**DeltaT1 (+3)**

This item specifies the range that controls CPU temperature and keeps it from going so high or so low when smart fan works.

**SMART Fan Slope PWM value (4 PWM value/°C)**

This item is used to set the Slope Select PWM of the smart fan.

Press <Esc> to return to the PC Health Status page.

**Shutdown Temperature (Disabled)**

Enable you to set the maximum temperature the system can reach before powering down

**Warning Temperature (Disabled)**

This item enables or disables the warning temperature.

**System Component Characteristics**

These items display the monitoring of the overall inboard hardware health events, such as System & CPU temperature, CPU & DIMM voltage, CPU & system fan speed,...etc.

- CPU Temperature
- CPU Fan Speed
- CPU Vcore
- VDIMM

Press <Esc> to return to the main menu setting page.

## Frequency/Voltage Control

This page enables you to set the clock speed and system bus for your system. The clock speed and system bus are determined by the kind of processor you have installed in your system.

CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.  
Frequency/Voltage Control

Auto Detect DIMM/PCI Clk	Enabled	Help item
Memory Voltage	1.9V	
SB Clock Spread Spectrum	Disabled	Options
Spread Spectrum	Disabled	
CPU Over-clocking Func.:	Enabled	1.9V
CPU Over-clocking Freq.:	200	2.0V
		2.2V
		2.3V

↑ ↓ ↔ : Move    Enter : Select    +/- : Value    F10: Save    ESC: Exit  
F1: General Help    F9: Default settings

### Auto Detect DIMM/PCI Clk (Enabled)

When this item is enabled, BIOS will disable the clock signal of free DIMM/PCI slots.

### Memory Voltage (1.9V)

This item determines the DDR2 voltage adjustment.

### SB Clock Spread Spectrum (Disabled)

This item is used to enable or disable the Southbridge clock spread spectrum.

### Spread Spectrum (Disabled)

If you enable spread spectrum, it can significantly reduce the EMI (Electro-Magnetic Interference) generated by the system.

### CPU Over-clocking Func. (Enabled)

This item decides the CPU over-clocking function installed in your system. If the over-clocking fails, please turn off the system power. And then, hold the PageUp key (similar to the Clear CMOS function) and turn on the power, the BIOS will recover the safe default.

### CPU Over-clocking Freq. (200)

This item decides the CPU over-clocking frequency installed in your system.



*Incorrectly doing overclock/overvoltage may result in damage to CPU, chipset, or memory and reduce the useful life of these components. This function is for advanced users only and we recommend you not to alter the default settings to prevent system instability or other unexpected results. (Enable for AM2+ / Disable for AM2)*

Press <Esc> to return to the main menu setting page.

### ***Load Default Settings***

This option opens a dialog box to ask if you are sure to install optimized defaults or not. You select [OK], and then press <Enter>, the Setup Utility loads all default values; or select [Cancel], and then press <Enter>, the Setup Utility does not load default values.

### ***Supervisor Password***

This page helps you install or change a password.

CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.  
Supervisor Password

Supervisor Password :Not Installed	Help item
Change Supervisor Password <input type="button" value="Press Enter"/>	Install or Change the password.

↑↓ → ← Move Enter : Select +/- : Value F10: Save ESC: Exit  
F1: General Help F9: Default settings

### **Supervisor Password (Not Installed)**

This item indicates whether a supervisor password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

### **Change Supervisor Password (Press Enter)**

You can select this option and press <Enter> to access the sub menu. You can use the sub menu to change the supervisor password.

Press <Esc> to return to the main menu setting page.



## User Password

This page helps you install or change a password.

CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.  
User Password

User Password : Not Installed	Help item
Change User Password <span style="float: right;">Press Enter</span>	Install or Change the password.

↑↓←→: Move Enter: Select +/-: Value F10: Save ESC: Exit  
F1: General Help F9: Default settings

### User Password (Not Installed)

This item indicates whether a user password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

### Change User Password (Press Enter)

You can select this option and press <Enter> to access the sub menu. You can use the sub menu to change the user password.

Press <Esc> to return to the main menu setting page.

### Save & Exit Setup

Highlight this item and press <Enter> to save the changes that you have made in the Setup Utility and exit the Setup Utility. When the Save and Exit dialog box appears, select [OK] to save and exit, or select [Cancel] to return to the main menu.

### Exit Without Saving

Highlight this item and press <Enter> to discard any changes that you have made in the Setup Utility and exit the Setup Utility. When the Exit Without Saving dialog box appears, select [OK] to discard changes and exit, or select [Cancel] to return to the main menu.



*If you have made settings that you do not want to save, use the "Exit Without Saving" item and select [OK] to discard any changes you have made.*

This concludes Chapter 3. Refer to the next chapter for information on the software supplied with the motherboard.

*Memo*

Using BIOS

## Chapter 4

### Using the Motherboard Software

#### About the Software CD-ROM

The support software CD-ROM that is included in the motherboard package contains all the drivers and utility programs needed to properly run the bundled products. Below you can find a brief description of each software program, and the location for your motherboard version. More information on some programs is available in a README file, located in the same directory as the software. Before installing any software, always inspect the folder for files named README.TXT, INSTALL.TXT, or something similar. These files may contain important information that is not included in this manual.



1. Never try to install all software from folder that is not specified for use with your motherboard.

2. The notice of Intel HD audio installation (optional): The Intel High Definition audio functionality unexpectedly quits working in Windows Server 2003 Service Pack 1 or Windows XP Professional x64 Edition. Users need to download and install the update packages from the Microsoft Download Center “before” installing HD audio driver bundled in the Driver CD. Please log on to <http://support.microsoft.com/default.aspx?scid=kb;en-us:901105#apliesto> for more information.

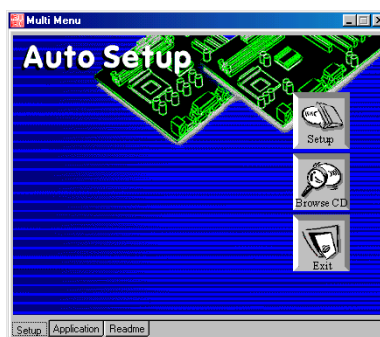
#### Auto-installing under Windows XP/Vista

The Auto-install CD-ROM makes it easy for you to install the drivers and software for your motherboard.



If the Auto-install CD-ROM does not work on your system, you can still install drivers through the file manager for your OS (for example, Windows Explorer). Refer to the Utility Folder Installation Notes later in this chapter.

The support software CD-ROM disc loads automatically under Windows XP/Vista. When you insert the CD-ROM disc in the CD-ROM drive, the autorun feature will automatically bring up the install screen. The screen has three buttons on it, Setup, Browse CD and Exit.



If the opening screen does not appear; double-click the file “setup.exe” in the root directory.

#### Using the Motherboard Software

### Setup Tab

<b>Setup</b>	Click the <b>Setup</b> button to run the software installation program. Select from the menu which software you want to install.
<b>Browse CD</b>	<p>The <b>Browse CD</b> button is the standard Windows command that allows you to open Windows Explorer and show the contents of the support CD.</p> <p>Before installing the software from Windows Explorer, look for a file named README.TXT, INSTALL.TXT or something similar. This file may contain important information to help you install the software correctly.</p> <p>Some software is installed in separate folders for different operating systems, such as Windows XP/Vista. Always go to the correct folder for the kind of OS you are using.</p> <p>In install the software, execute a file named SETUP.EXE or INSTALL.EXE by double-clicking the file and then following the instructions on the screen.</p>
<b>Exit</b>	The <b>EXIT</b> button closes the Auto Setup window.

### Application Tab

Lists the software utilities that are available on the CD.

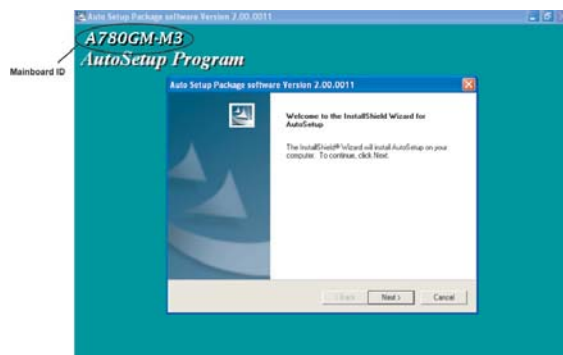
### Read Me Tab

Displays the path for all software and drivers available on the CD.

### Running Setup

Follow these instructions to install device drivers and software for the motherboard:

1. Click **Setup**. The installation program begins:

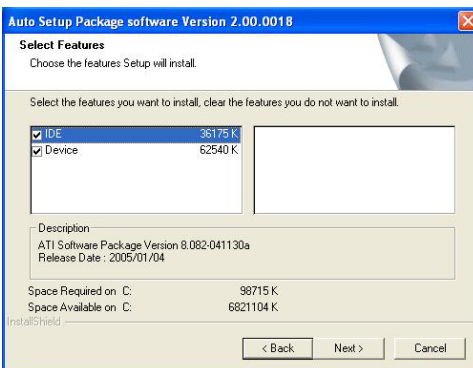


*The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.*

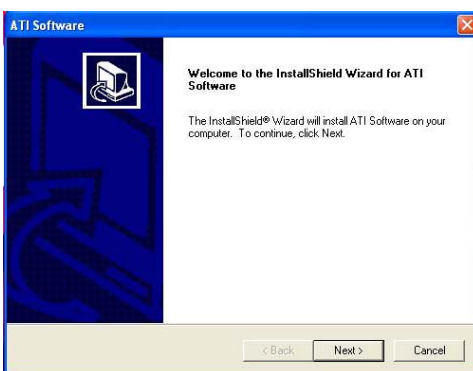
The motherboard identification is located in the upper left-hand corner.

## Using the Motherboard Software

2. Click **Next**. The following screen appears:



3. Check the box next to the items you want to install. The default options are recommended.
4. Click **Next** run the Installation Wizard. An item installation screen appears:



5. Follow the instructions on the screen to install the items.

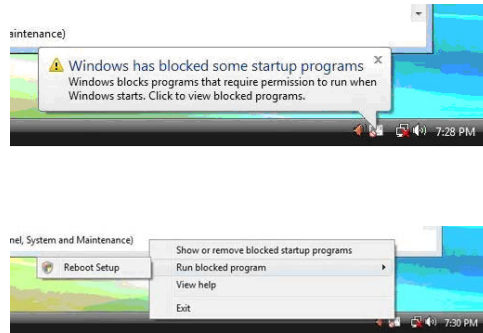


1. Drivers and software are automatically installed in sequence. Follow the onscreen instructions, confirm commands and allow the computer to restart a few times to complete the installation.
2. During the Windows Vista Driver Auto Setup Procedure, users should use one of the following two methods to install the driver after the system restart.

## Using the Motherboard Software

### Method 1. Run Reboot Setup

Windows Vista will block startup programs by default when installing drivers after the system restart. You must select taskbar icon **Run Blocked Program** and run **Reboot Setup** to install the next driver, until you finish all drivers installation.



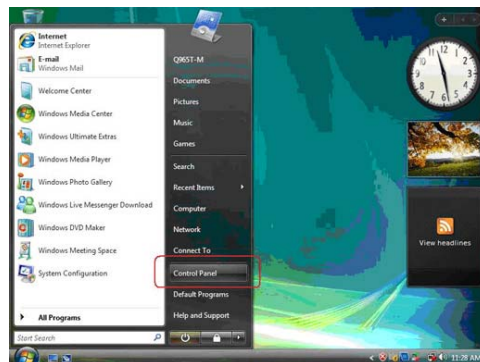
### Method 2. Disable UAC (User Account Control)

\* For administrator account only. Standard user account can only use Method 1.

Disable Vista UAC function before installing drivers, then use CD driver to install drivers, it will continue to install drivers after system restart without running blocked programs.

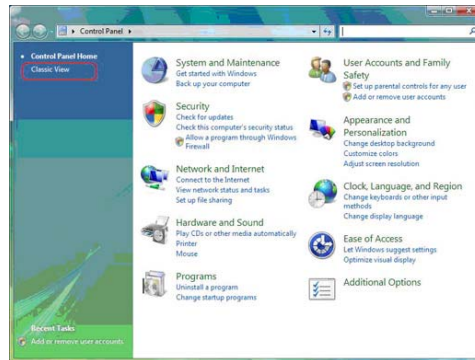
Follow these instructions to Disable Vista UAC function:

1. Go to **Control Panel**.

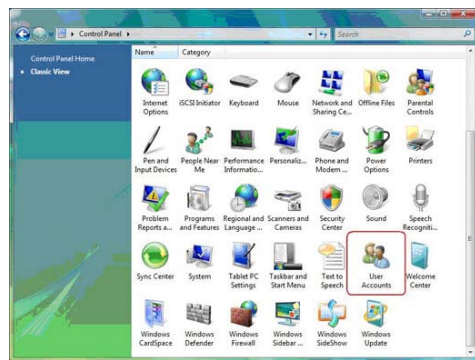


Using the Motherboard Software

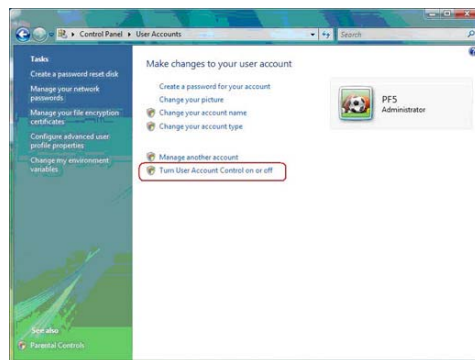
2. Select **Classic View**.



3. Set **User Account**.

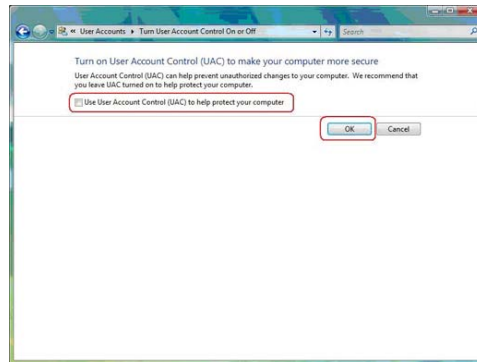


4. Select **Turn User Account Control on or off** and press **Continue**.



Using the Motherboard Software

5. Disable **User Account Control (UAC) to help protect your computer** item and press **OK**, then press **Restart Now**. Then you can restart your computer and continue to install drivers without running blocked programs.



## Manual Installation

Insert the CD in the CD-ROM drive and locate the PATH.DOC file in the root directory. This file contains the information needed to locate the drivers for your motherboard.

Look for the chipset and motherboard model; then browse to the directory and path to begin installing the drivers. Most drivers have a setup program (SETUP.EXE) that automatically detects your operating system before installation. Other drivers have the setup program located in the operating system subfolder.

If the driver you want to install does not have a setup program, browse to the operating system subfolder and locate the readme text file (README.TXT or README.DOC) for information on installing the driver or software for your operating system.

## Utility Software Reference

All the utility software available from this page is Windows compliant. They are provided only for the convenience of the customer. The following software is furnished under license and may only be used or copied in accordance with the terms of the license.



*These software(s) are subject to change at anytime without prior notice. Please refer to the support CD for available software.*

This concludes chapter 4.



## Chapter 5

### *Hybrid Graphics® Technology Support*

#### **Hybrid Graphics® Technology**

The Hybrid Graphics® technology provides significant display performance boost to AMD-based systems by inserting the external PCI Express graphics card and enabling both the discrete GPU and the RS780 graphics core to render simultaneously in Hybrid CrossFire™ mode.

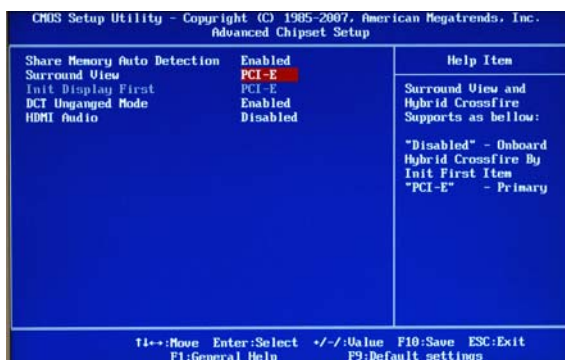
Follow the steps below to start the Hybrid Graphics® technology.

1. Insert a graphics card (which can be used for Hybrid Graphics® technology, such as HD3400 series) into the **PCIEX16** slot.


Make sure that the card is properly seated on the slot.



2. For Hybrid Graphics®, if display by PCI-E, you must enter the BIOS, set the *Surround View* in *Advanced Chipset Setup* to **PCI-E**. Then press F10 to save the configuration and exit the BIOS. After entering OS, enter *Catalyst Control Center* to enable Hybrid CrossFire™.

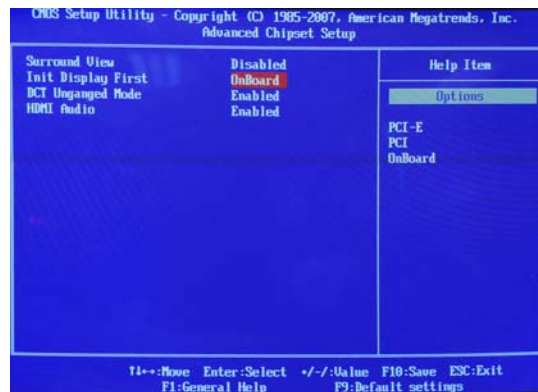


Hybrid Graphics® Technology Support

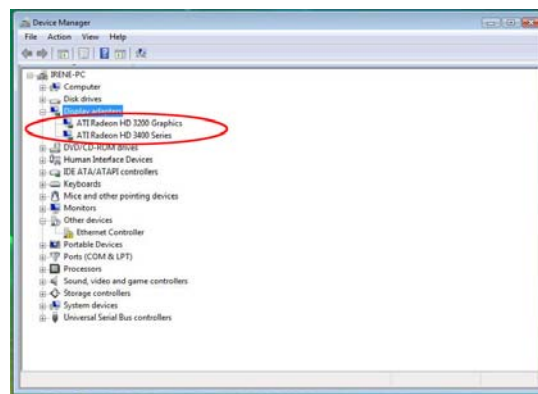
**Note:**  SurroundView™ provides the power and convenience of multiadapter, multimonitor support for computers that use a PCI-E based graphics card in conjunction with ATI integrated graphic processors. And there are two options: Disabled and PCI-E.

If SurroundView™ set to **Disabled**, and *Init Display First* set to **OnBoard**, SurroundView™ will be Enabled by Catalyst Control Center based on cancel the *Enable CrossFire™* option.

While if display by OnBoard, you must enter the BIOS, set the *Init Display First* in *Advanced Chipset Setup* to **OnBoard**. Then press F10 to save the configuration and exit the BIOS. After entering OS, enter *Catalyst Control Center* to enable CrossFire™.



3. Click with your right mouse button on *My Computer*, then click the option *Manage* and choose the *Device Manager*, finally, click the *Display Adapters*. The following screen appears. Be sure that the external ATI graphics (ATI Radeon HD 3400 Grapics) and Onboard graphics (ATI Radeon HD 3200 Series) are both displaying in the *Display adapters*.



Hybrid Graphics® Technology Support

4. Enter Catalyst Control Center, you can see the option of *CrossFire™*, click it and select *Enable CrossFire™*, then Hybrid Graphics® starts.



To disable Hybrid Graphics®, please make sure to cancel *Enable CrossFire™* in *Catalyst Control Center* firstly.

*Memo*